

CLAIMS

WHAT IS CLAIMED IS:

1 1. A method of manufacturing an integrated circuit substrate
2 including a strained layer, the method comprising:

3 providing a base layer;
4 providing an insulating layer above the base layer;
5 providing a semiconductor layer above the insulating layer;

6 and

7 forming a plurality of pillars in the base layer.

1 2. The method of claim 1, further comprising providing a
2 compressive material in apertures associated with the pillars.

1 3. The method of claim 2, further comprising planarizing the
2 compressive material until the base layer is reached.

1 4. The method of claim 1, wherein the semiconductor layer
2 includes silicon.

1 5. The method of claim 1, wherein the insulative layer includes
2 silicon dioxide.

1 6. The method of claim 1, wherein the base layer includes
2 silicon.

1 7. The method of claim 1, wherein the pillars have a width of
2 2000-3000 Å.

1 8. The method of claim 1, wherein the compressive material
2 includes nitride.

1 9. A method of forming a strained semiconductor layer above a
2 base layer, the method comprising:

3 etching a plurality of trenches in the base layer; and
4 providing a compressive material in the trenches.

1 10. The method of claim 9, further comprising providing a liner in
2 the trenches.

1 11. The method of claim 10 further comprising providing a
2 mechanical compressive force on the base layer.

1 12. The method of claim 9, where the trenches are in a waffle
2 pattern.

1 13. The method of claim 9, wherein the compressive material is
2 a low thermal resistance material.

1 14. The method of claim 9, wherein the compressive material
2 includes nitride.

1 15. The method of claim 9, wherein a buried oxide layer is
2 between the base layer and the strained semiconductor layer.

1 16. The method of claim 9, wherein the semiconductor layer is
2 silicon.

1 17. A substrate comprising:
2 a strained layer; and
3 a base layer below the strained layer having trenches on a
4 side opposite the strained layer, the trenches inducing stress in the
5 strained layer.

1 18. The substrate of claim 17, wherein the strained layer is a
2 strained silicon.

1 19. The method of claim 17, further comprising a compressive
2 material in the trenches.

1 20. The substrate of claim 17, further comprising a buried oxide
2 layer between the base layer and the strained layer.